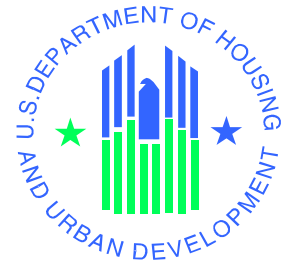# Study of Single Family Property

Management Systems and Data

FEASIBILITY STUDY

June 9, 2003

Office of Housing

Federal Housing Administration

Department of Housing and Urban Development

Feasibility Study

Table of Contents

1.0   GENERAL INFORMATION

1.0 GENERAL INFORMATION

The Federal Housing Administration's (FHA's) Office of Insured Single Family Housing administers a property management program and oversees the acquisition, marketing, and disposition of approximately 60,000 properties per year. Single Family Housing maintains the Single Family Acquired Asset Management System (SAMS) and other property management support systems to assist with program operations, such as case management, financial management, contractor monitoring, business evaluation, and business partner management. SAMS and the other systems must fully support these business functions in order for FHA to effectively and efficiently manage its program.

Since the original implementation of SAMS, Single Family Housing has changed the property management program and its business model. In an effort to streamline operations, FHA began contracting out the Real Estate Owned (REO) functions in 1997. Consequently, Single Family Housing's role shifted to oversight and monitoring rather than performing the day-to-day REO activities. Over time, FHA adapted SAMS and developed supplemental systems to support both the property management and contractor oversight functions. While FHA has made extensive modifications to SAMS and developed other support systems, numerous challenges remain with its property management operations within the current systems environment. For example, maintenance costs remain excessively high. Furthermore, FHA has received criticisms from the General Accounting Office (GAO) about its single-family property management operations, systems, and monitoring performance in various studies. As a result, GAO has placed Single Family on its high-risk list since 1994. In its financial statements, FHA also has received material weaknesses and reportable conditions related to single-family systems, including:

- FHA's systems environment provides insufficient support to its business processes.
- FHA lacks control over budget execution and funds.
- FHA performs inadequate monitoring over its Single Family property inventory.

1.1 Purpose

Single Family Housing seeks to increase SAMS' functionality or implement a new system. FHA needs to assess its long-term business needs and the capacity of its current systems prior to any further systems development efforts. The *Feasibility Study* assesses the current status of SAMS and replacement options. Through this assessment, FHA identifies the solution that best meets its needs. The following bullets define the options selected for review.

- **Enhancements to SAMS** - This option evaluates the continued use of SAMS with modifications. In this scenario, SAMS remains the underlying system without changes to its core functionality. However, we assess the value of introducing new technologies that work in conjunction with SAMS. As noted in the *Current Deficiencies* report, SAMS currently lacks capabilities within some of its core functionalities, is not user-friendly, and does not take advantage of technological advances in the industry. Based on our review of the major deficiencies with SAMS, we proposed the following modifications in addition to those already scheduled:
    - Front-end graphical user interface (GUI).
    - Contemporary reporting and analytical tool.
    - New procurement module.

- Improved communication capabilities.

▪ **Customized solution** – This option involves developing a new application and database. In this option, FHA defines, designs, and builds a more modern customized system in-house and gradually phases out SAMS and other support systems as the new system becomes operational. FHA may choose to complete this work with or without consultants.

▪ **Commercial-off-the-shelf (COTS) solution** – The COTS-based approach consists of signing a licensing agreement with a software vendor for an REO system or other packages capable of meeting Single Family's requirements. The software vendor also offers or provides the tools for implementation, product integration, customization, and source code development associated with "gluing and wrapping" the COTS components.

▪ **Application Service Provider (ASP) solution** – An ASP hosts software applications on its own servers within its own facilities. An ASP not only hosts the application, but also offers full-scale services for implementation, training, and ongoing operational support. The software vendor shoulders the burden of database and programming administration, backup processing, and core hardware acquisition, support, and maintenance. For the products we reviewed, the software vendors referred to themselves as application service providers even though they function as a service bureau. Throughout this document, we will refer to these software vendors as "ASP." The degree to which service providers can support client-specific enhancements to the application system varies by provider.

▪ **Data Reporting solution** – With this option, FHA discontinues the use of SAMS, and does not provide the Management and Marketing (M&M) contractors with a property management system. FHA requires the M&M contractors to use or obtain their own property management system, and report data to FHA on a pre-defined basis. FHA works with the industry to specify reporting requirements, and develops a data warehouse or similar repository to store incoming data and create reports. FHA then reviews the data to monitor adherence to contract terms and performs periodic on-site audits to verify the validity of the information provided.

1.2   Scope

This project provides FHA with a blueprint for property management and helps guide FHA towards an improved way of conducting its business. FHA performed an in-depth review of the Single Family systems supporting the property management function, including asset management, business participant management, business evaluation, and financial management. Based on this analysis, we presented an alternative solution to its current systems environment. FHA conducted this study in five primary phases:

- Phase I – Identify major business and system needs.

- Phase II – Identify major deficiencies in the current systems.

- Phase III – Develop short- and long-term alternatives.

- Phase IV – Present findings and obtain stakeholder buy-in.

- Phase V – Develop Initiate phase documents, including the Project Plan, Needs Assessment, Feasibility Study, Risk Analysis, Cost-Benefit Analysis, System Security Plan, and Systems Decision Paper.

1.3   System Overview

While the Department of Housing and Urban Development's (HUD) Information Technology division provides technical assistance, HUD's Office of Housing is responsible for the identification of business process and reporting needs of its systems. For single-family mortgage insurance programs, the Office of Single Family Programs and the Office of the Comptroller share responsibility for SAMS and other single-family systems.

SAMS is a mixed program and financial management system that accounts for the sale of over 60,000 properties valued at over $5 billion dollars and related expenses totaling nearly $1 billion per year. SAMS supports HUD staff at Headquarters, Homeownership Centers (HOCs), and M&M contractors with tracking single-family properties from acquisition through resale. In addition to collecting data related to the management, marketing, and disposition of properties, SAMS maintains financial records in compliance with the Federal Credit Reform Act and processes disbursements to M&M contractors, vendors, taxing authorities, and homeowners' associations.

SAMS is hosted on HUD's IBM-compatible mainframe and is connected to HUD's network, HINET, through a COMTEN front-end processor. Software used in SAMS includes: COBOL, DB2, CICS, EXTRA, JCL, NOMAD, and the Configuration Management tool, Endevor. SAMS development tools include Electronic Data System's (EDS) proprietary case tool – INCASE.

The following table provides the requisite system information.

Responsible Organization	Federal Housing Administration – Office of Housing
System Name or Title	Single Family Acquired Asset Management System
System Code	A80S
Project Cost Accounting Sub-system (PCAS) Number	To Be Determined
System Category	Major application
Operational Status	Operational
Users	FHA and M&M contractors

System Input	Mortgagee data, transmittal check data, property acquisition data, claim data, lockbox and Fedwire collection data, check data, valid property case data, property maintenance data, property acquisitions
System Output	New acquisitions, inventory status and sales data, property listing, property title data, SAMS general ledger balances, disbursement data, and sales related data.
Interaction With Other Systems	The SAMS environment is composed of numerous interconnected and stand alone systems. SAMS shares data with the following systems through manual or automated interfaces: Single Family Insurance System (SFIS), Computerized Homes Underwriting Management System (CHUMS), Institutional Master File (IMF), A80N, Single Family Insurance Claims Subsystem, Lockbox, File Transfer Protocol (FTP) Server, HUD Web, Kiosks, Single Family Data Warehouse, TEAM, Fedwire system (Cashlink), Cash Control Accounting Reporting System (CCARS), ECS system (Electronic Funds Transfer (EFT) disbursements), and the FHA Subsidiary Ledger

1.4   Project References

FHA used the following reference materials to prepare the *Feasibility Study*.

Document	Date
EDS, HUD/SAMS Release Summary	No date noted
Information Technology Reform Act of 1996	No date noted
IBM Endowment for the Business of Government, *IT Outsourcing: A Primer for Public Managers*, Chen, Perry	February 2003
Joint Financial Management Improvement Program, *Property Management System Requirements*	October 2002
Management & Marketing Service Contract Terms and Conditions	No date noted
National Institute of Standards and Technology, Special Publication 800-12, An Introduction to Computer Security: The NIST Handbook	October 1995
National Institute of Standards and Technology, Special Publication 800-14, Generally Accepted Principles and Practices for Securing Information Technology Systems	September 1996

Document	Date
National Institute of Standards and Technology, Special Publication 800-16, Information Technology Security Training Requirements: A Role- and Performance-Based Model	April 1998
National Institute of Standards and Technology, Special Publication 800-18, Guide for Developing Security Plans for Information Technology Systems	December 1998
National Institute of Standards and Technology, Special Publication 800-26, Security Self-Assessment Guide for Information Technology Systems	November 2001
National Institute of Standards and Technology, Special Publication 800-40, Procedures for Handling Security Patches	August 2002
National Institute of Standards and Technology, Special Publication 800-44, Guidelines on Securing Public Web Servers	September 2002
Office of Management and Budget Circular Number A-130, *Management of Federal Information Resources, Appendix III*	November 2000
United States Department of Housing and Urban Development, *Business Process Reengineering*	March 1997
United States Department of Housing and Urban Development, *FHA Audit of Financial Statements Fiscal Years 2002 and 2001*	January 2003
United States Department of Housing and Urban Development, *Final Draft SAMS User's Guide*	August 2002
United States Department of Housing and Urban Development, *Management Structure Design and Specifications in the M&M Contract Environment For Single Family Property Disposition*	January 1999
United States Department of Housing and Urban Development, *M&M Contractor Compliance Review, Risk-Based Targeting Model Web Tool Training*	August 2002
United States Department of Housing and Urban Development, *Office of the Single Family Housing Target Architecture Development*	September 2002
United States Department of Housing and Urban Development, *Processing Procedures and Internal Controls for M&M Contractors*	No date noted

Document	Date
United States Department of Housing and Urban Development, *SAMS Reports Training Manual*	May 2002
United States Department of Housing and Urban Development, *Single Family Housing Target Architecture*	August 2002
United States General Accounting Office, *Financial Management: Strategies to Address Improper Payments at HUD, Education, and Other Federal Agencies*	October 2002
United States General Accounting Office, *Information Technology Leading Commercial Practices for Outsourcing of Services*	November 2001
United States General Accounting Office, Loan Origination and Foreclosed Property Management Processes	November 1999
United States General Accounting Office, *Single Family Housing: Current Information Systems Do Not Fully Support the Business Processes at HUD's Homeownership Centers*	October 2001
United States General Accounting Office, *Single Family Housing: Improvements Needed in HUD's Oversight of the Property Sale Process*	April 2002
United States General Accounting Office, *Single Family Housing: Stronger Measures Needed to Encourage Better Performance by Management and Marketing Contractors*	May 2002

1.5   Acronyms and Abbreviations

The following table lists the acronyms and abbreviations used in this document.

Acronym/Abbreviation	Definition
ASP	Application Service Provider
CCARS	Cash Control Accounting Reporting System
CHUMS	Computerized Homes Underwriting System
CIO	Chief Information Officer
CO	Contracting Officer

Acronym/Abbreviation	Definition
COTS	Commercial-of-the-Shelf
EDS	Electronic Data Systems
EFT	Electronic Funds Transfer
FHA	Federal Housing Administration
FTP	File Transfer Protocol
GAO	General Accounting Office
GSE	Government Sponsored Enterprise
GTM	Government Technical Monitor
GTR	Government Technical Representative
GUI	Graphical User Interface
HOC	Homeownership Center
HUD	U.S. Department of Housing and Urban Development
IMF	Institutional Master File
ITAS	Inspection Tracking and Assessment System
OCFO	Office of the Chief Financial Officer
OCIO	Office of the Chief Information Officer
OCPO	Office of the Chief Procurement Officer
OIG	Office of Inspector General
OIT	Office of Information Technology
OMB	Office of Management and Budget
M&M	Management and Marketing
PCAS	Project Cost Accounting Sub-System

Acronym/Abbreviation	Definition
RBTM	Risk Based Targeting Model
REO	Real Estate Owned
SAMS	Single Family Acquired Asset Management System
SFDW	Single Family Data Warehouse
SFIS	Single Family Insurance System
SPI	Special Property Inspector

1.6   Point of Contact

The following sections provide a listing of contacts for additional information regarding this document and the overall project, as well as a listing of departmental organizations and their contacts that provide support and guidance related to this project.

1.6.1   Information

This table provides a list of organizational points of contact that may be needed by the document user for informational and troubleshooting purposes. All contacts are located at 451 Seventh Street, SW, Washington, DC, 20410.

1.6.2   Coordination

The following table provides a list of organizations that require coordination between the project and its specific support function.

2.0   Management Summary

2.0 MANAGEMENT SUMMARY

2.1   Environment

The proposed property management system will support Single Family Housing to operate an effective program and maintain strong management controls. The property management system will provide functionalities for case management, contractor monitoring, business evaluation, and business partner management.

The property management system will interface with systems both internal and external to HUD. One primary interface is to the FHA subsidiary ledger. The FHA subsidiary ledger will support financial management activities, such as posting journal vouchers, tracking contracts, and performing funds control.

2.1.1   Organizations Involved

The Director of Single Family Asset Management Division and the Director of the General Ledger Accounting Division are the co-sponsors of this project. The Single Family Office of Housing Asset Management Division is responsible for the disposition of properties and the internal primary user of the proposed property management system. The General Ledger Accounting Division is responsible for the FHA subsidiary ledger and the rules-based interface with the proposed property management system and other operational systems.

2.1.2   Input/Output

The structure of the property disposition program requires several different users to access the system from disparate locations. The M&M contractors are the primary users of the system in performing the daily activities of property management and disposition. Headquarters and HOC staff will use the property management system to monitor M&M contractors and to analyze program performance.

The property management system will transmit information to and from the FHA subsidiary ledger. The property management system will store operation data, and the subsidiary ledger will store the necessary financial data. An interface between the property management system and the subsidiary ledger facilitates the exchange of financial information at predetermined events or on predetermined timeframes. The subsidiary ledger will use the financial information to post journal vouchers, track contract spending, and perform funds control. The subsidiary ledger will send transmittal check data, lockbox, and Fedwire collection data to the property management system as necessary. There is a wide range of interface options available to FHA and more information will be available as the interface is defined in greater detail.

The proposed system will also receive several types of automated inputs from other existing HUD systems. The system will receive mortgagee data, transmittal check data, property acquisition data, claim data, lockbox and Fedwire collection data, check data, valid property case data, property maintenance data, property acquisitions.

For outputs, the system provides data for inventory status and sales data, property listing, property title data, disbursement data, and sales related data. The system will need to generate

internal management reports, ad hoc reports, automated emails and letters, and contractor and vendor performance reports.

2.1.3 Processing

The proposed property management system will incorporate – at a minimum – the functions of SAMS, Risk Based Targeting Model (RBTM), Inspection Tracking and Assessment System (ITAS), and the FTP Server. FHA has documented detailed business needs, or processing requirements, in the *Business Needs* report. At a high level, the joint system effort's processing requirements include the following:

- Comprehensive case management tool with user-friendly navigation.
- Up-to-date listing of approved business partners with built-in controls over authorized activities and payments.
- Standardized monitoring of M&M contractors.
- Quantifiable measurement of M&M evaluation and monitoring that are clearly communicated and tracked.
- Proper controls over monitoring contractors and vendors.
- Timely communication of business partners with built-in controls over participation.
- Quantifiable measurement of portfolio evaluation with trends captured over time.
- Ensure proper adherence to program policies and procedures.
- Accurate and timely account of property inventory, collections, and disbursements to support financial statements and other reporting.
- Maintain an accurate financial status of each property.
- Controls over budgetary funds.
- Accurate and timely payments with appropriate control mechanism to protect against waste, fraud, and abuse.
- Accurate and timely collections with appropriate control mechanism to protect against waste, fraud, and abuse.

2.1.4 Security

FHA will implement and maintain a plan to assure that adequate security is provided for all information collected, processed, transmitted, stored, or disseminated by the proposed system. The data transmitted by the system is unclassified but sensitive, which requires protection for confidentiality, availability, and integrity. The system will comply with all departmental requirements, such as HUD Handbook 2400.24 Information Security Program, and applicable federal regulations including the Computer Security Act of 1987, Office of Management and Budget (OMB) Circular A-127, OMB Circular A-130, Privacy Act, e-Government Act, Computer Matching and Privacy Protection Act, and Patriot Act.

FHA has developed the *System Security and Privacy Plan* to address the sensitivity and criticality of the data. The plan also details control measures including management controls, operational controls, and technical controls. As the project moves forward, FHA will update the *System Security and Privacy Plan* to define:

- Procedures to ensure protection is built into the system.

- Day-to-day procedures and mechanisms to protect systems when operational.

- Hardware and software controls used to provide automated protection or to facilitate manual protection.

- Business continuity controls to ensure continuous availability of the system and data.

- Acquisition, development, and installation controls.

- Controls to protect the system from unauthorized access or misuse.

- Controls over the security of applications.

2.1.5 System Interaction

The property management system will be one component of an integrated solution across Single Family operations. One of the property management system's primary interfaces will be with the FHA subsidiary ledger. In the future environment, the property management system will serve as the operational system and the subsidiary ledger will serve as the financial system. An interface between the property management system and the subsidiary ledger will facilitate the exchange of financial information at predetermined events or on predetermined timeframes. The subsidiary ledger will use the financial information to post journal vouchers, track contract spending, and perform funds control activities. The subsidiary ledger will also send transmittal check data, lockbox, and Fedwire collection data to the property management system. There is a wide range of interface options available to FHA and more information will be available as the interface is defined in greater detail.

Depending on the interface developed with the subsidiary ledger, the property management system may interface with as many as seven other systems to perform the required functions. The system may interact with:

- SFIS to transfer case data.

- CHUMS to transfer uninsurable and sales related data.

- IMF to transfer mortgagee, appraiser, and closing agent data.

- A80N to transfer property acquisition data.

- Single Family Insurance Claims Subsystem to transfer property acquisition data, property title data, and miscellaneous property costs.

- Single Family Data Warehouse (SFDW) to transfer portfolio data.

- HUD Web and Kiosks to transfer property data.

2.1.6 Physical Environment

The proposed property management system will use web-based technology with a clear migration path to a fully web-enabled architecture to provide a single integrated solution nationwide. FHA expects that the proposed property management solution will use an operational architecture consistent with HUD's enterprise system infrastructure and will interface with necessary FHA systems. To this end, FHA requires that the new system provide:

- User-friendly graphical-user interface.

- User-friendly ad hoc reporting capability.

- User-segregated access to critical functions.

- Interactive transactions with existing FHA systems, as necessary.

- Comprehensive internal communication tool that supports automated emails and letter generation.

- Real-time or daily interaction with the FHA subsidiary ledger for financial information.

- Monthly interface with the SFDW.

2.2   Current Functional Procedures

SAMS supports Headquarters staff, HOC staff, and M&M contractors in tracking Single Family properties from their acquisition by HUD through the steps necessary to resell the properties. SAMS is a mixed program and financial management system that accounts for the sale of over 60,000 properties per year valued at over $5 billion dollars and related expenses totaling nearly $1 billion. In addition to collecting data related to the management, marketing, and disposition of properties, SAMS maintains financial records in compliance with the Federal Credit Reform Act and processes disbursements to M&M contractors, vendors, taxing authorities, and homeowners' associations. The annual maintenance and operating costs for SAMS is approximately $6 million per year. For detailed documentation regarding SAMS procedures, refer to the SAMS User's Guide, August 2002.

Current Manual and Automated Interfaces with SAMS

The following graphic depicts interfaces to and from SAMS, as documented on January 2002. HUD is in the process of establishing an enterprise architecture. As such, some of the functionality of the systems in the following graph may be combined in the development of replacement systems or may be moved to new technology platforms. During later phases of the project, FHA will work with the OCIO and OIT to address interface issues. Section 2.1.2 details the types of data that is transferred.
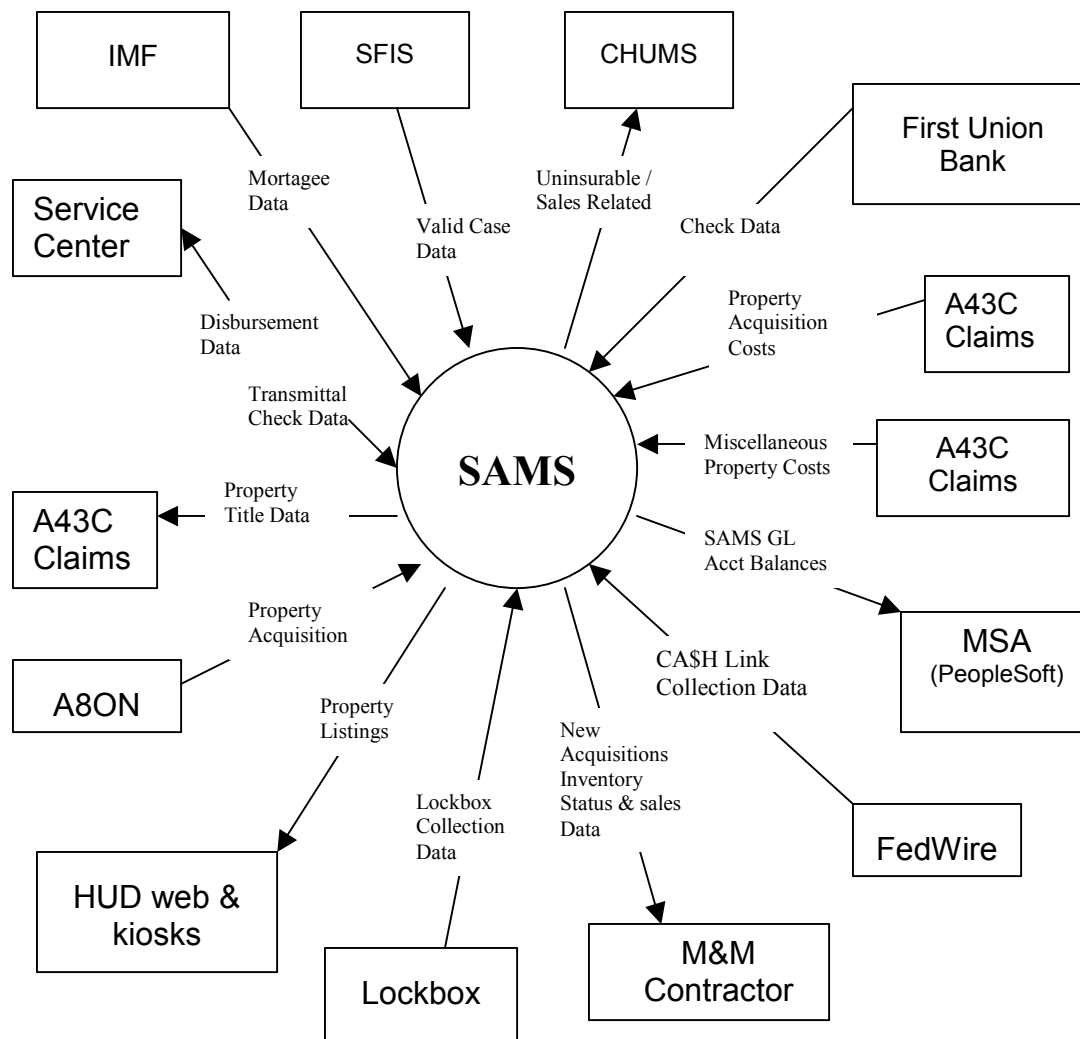
IMF

SFIS

CHUMS

First Union
Bank

Service
Center

Mortagee
Data

Uninsurable /
Sales Related

Check Data

A43C
Claims

Disbursement
Data

Valid Case
Data

Property
Acquisition
Costs

Transmittal
Check Data

SAMS

Miscellaneous
Property Costs

A43C
Claims

Property
Title Data

A43C
Claims

SAMS GL
Acct Balances

Property
Acquisition

MSA
(PeopleSoft)

A8ON

Property
Listings

CA$H Link
Collection Data

HUD web &
kiosks

Lockbox
Collection
Data

New
Acquisitions
Inventory
Status & sales
Data

FedWire

Lockbox

M&M
Contractor

SAMS is hosted on HUD's IBM-compatible mainframe and is connected to HUD's network, HINET, through a COMTEN front-end processor. Software used in SAMS includes: COBOL, DB2, CICS, EXTRA, JCL, NOMAD, and the Configuration Management tool, Endevor. SAMS development tools include EDS's proprietary case tool – INCASE.

2.3   Functional Objectives

FHA plans to implement a new property management system that meets its business needs, leverages the functionality of the FHA subsidiary ledger, takes advantage of current technological trends, and uses an updated technical environment so that operating costs are reduced. HUD management will benefit through reductions in material weaknesses for Single Family program operations and increased confidence in the quality of FHA portfolio data. There are several key objectives for this implementation project:

- Capture and access property and monitoring data that is comprehensive, accurate, and timely.

- Strengthen contractor oversight and assessment capabilities.

- Improve funds control, payables management, receivables management, and other accounting functions.

- Strengthen reconciliation processes and reduce manual reconciliations.

- Enhance ad hoc query capabilities thereby improving timeliness of reporting.

- Make the system more accessible to stakeholders through the use of the Internet.

- Streamline and integrate business processes so that valuable personnel time can be allocated to business operations rather than data management.

- Realize faster reviews and achieve time-savings through business partner communications and decision-making occurring within the system.

- Reduce manual and paper-driven processes.

See FHA's *Business Needs* report for a listing of high-level system functions and technical requirements.

2.4   Performance Objectives

FHA's strategic measures are derived from HUD department-level strategic goals as well as the goals established by the President's Management Agenda. According to the President's Management Agenda, the primary goals for the President's "Program Initiatives" applicable to FHA are to: (1) improve FHA risk management and (2) strengthen program controls. The President's Management Agenda also outlines Government-wide initiatives that are applicable to FHA, particularly in the areas of "Improved Financial Management" and "Expanded Electronic Government":

- Improve timeliness by re-engineering processes and expanding use of web-based technologies.

- Ensure reliability by obtaining and sustaining clean audit opinions.

- Reduce reporting burden on businesses.

- Automate internal processes to reduce costs internally.

HUD's goal of "Embrace high standards of ethics, management, and accountability" is the cornerstone of this proposed solution effort. According to HUD's Strategic Plan, this goal is "perhaps the most important" of HUD's priorities because it impacts the Department's ability to effectively meet all of the other goals. The following HUD goals also indirectly relate to the Single Family Property disposition program's mission: (1) Help families move from rental housing to homeownership; (2) Ensure equal opportunity and access to housing; and (3) Support community and economic development efforts.

FHA plans to develop and update its Performance Management Plan to ensure it is aligned with HUD goals as well as the President's Management Agenda. The Plan will define performance or outcome measures to gauge the results achieved in meeting intended targets. Measures will be both operational and financial. Operational measures will evaluate the effectiveness of FHA performance, whereas financial measures will evaluate the cost efficiency of critical functions.

FHA plans to identify a selection of these performance measures to evaluate the proposed property management system.

The figure below provides examples of the strategic goals and possible performance measures. FHA plans to regularly update this chart.

Fiscal Year	Strategic Goal(s) Supported	Performance Indicator	Planned Performance Improvement Goal	Actual	Planned Performance Metrics	Actual
FY06 – FY10	Goal 2: Help families move from rental housing to homeownership. Objective 2.1: Expand National homeownership opportunities.	Indicator 2.1.1: Improve National homeownership opportunities.	Increase the number and quality of REO properties made available to the public.	NA	▪ Increase access to M&M contractor performance data. ▪ Real-time information on the status of properties. ▪ Decrease time in inventory. ▪ Access to reports that support business decisions, measure internal and external performance, and validates success.	NA
FY06 – FY10	Goal 2: Help families move from rental housing to homeownership. Objective 2.1: Expand National homeownership opportunities.	Indicator 2.1.5: (Increase) The number of FHA single-family mortgage insurance endorsements nationwide	Maximize the return on investment for REO properties while decreasing time in inventory to increase the returns to the MMI fund.	NA	▪ Measure percentage of return as compared to appraised value. ▪ Decrease time in inventory.	NA
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.1: Improve HUD's management and internal controls, including FHA financial management and resolve audit issues.	Indicator 6.1.1: FHA will address financial management and system deficiencies through the phased implementation of an integrated financial system to support FHA functions to be completed by December 2006.	Improved controls over budget execution and funds. Current system lacks controls to verify funds availability prior to any reservations, obligations, or disbursements. It does not maintain available budgetary resources, contract values, or contract obligations.	NA	▪ Measure staff time spent on performing manual funds control before and after system implementation.	NA

Fiscal Year	Strategic Goal(s) Supported	Performance Indicator	Planned Performance Improvement Goal	Actual	Planned Performance Metrics	Actual
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.1: Improve HUD's management and internal controls, including FHA financial management and resolve audit issues.	Indicator 6.1.1: FHA will address financial management and system deficiencies through the phased implementation of an integrated financial system to support FHA functions to be completed by December 2006.	Show a decrease in system weaknesses related to financial management. This measures HUD's ability to manage its resources and the effectiveness of its internal controls.	NA	▪ Measure number of audit issues related to weak system controls.	NA
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.1: Improve HUD's management and internal controls, including FHA financial management and resolve audit issues.	Indicator 6.1.8: Financial statements receive unqualified audit opinions.	Provide accurate and timely accounting data to Subsidiary Ledger. Current system provides inadequate information to Subsidiary Ledger. Poor data necessitates manual processes to convert data to legible formats.	NA	▪ Decrease number of transactions with Subsidiary Ledger requiring reconciliation. ▪ Decrease number of transactions requiring additional research after reconciliation.	NA
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.1: Improve HUD's management and internal controls, including FHA financial management and resolve audit issues.	Indicator 6.1.10: The number of non-compliant financial management systems is reduced from 17 to 14.	Replacing SAMS with a compliant property management system will reduce the number of non-compliant systems by 1.	NA	▪ Decrease in non-compliant financial management systems.	NA

Fiscal Year	Strategic Goal(s) Supported	Performance Indicator	Planned Performance Improvement Goal	Actual	Planned Performance Metrics	Actual
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.1: Improve HUD's management and internal controls, including FHA financial management and resolve audit issues.	Indicator 6.1.17: The share of REO properties that are sold to owner-occupants will increase by 5 percent.	Accurate and timely data on program policies and mission. Current system provides inadequate support and controls over bid and sale process.	NA	▪ Measure number of public comments/ complaints received compared to previous years. ▪ Increase qualitative and quantitative data collected on M&M contractor performance.	NA
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.2: Improve accountability, service delivery, and customer service of HUD and our partners.	Indicator 6.2.10: HUD will advance the goals of the E-Government initiative to be reflected in more efficient, useful and transparent grant and other program processes.	More employee time spent on value-added analysis. Automated and consolidated reports will allow for less time to be spent on data manipulation and more time on analysis, communication, and information exchange.	NA	▪ Reduce staff time spent on reconciliation of reviews and other monitoring activities. ▪ Decrease number of systems used to sample cases.	NA
FY06 – FY10	Goal 6: Embrace high standards of ethics, management, and accountability. Objective 6.2: Improve accountability, service delivery, and customer service of HUD and our partners.	Indicator 6.2.10: HUD will advance the goals of the E-Government initiative to be reflected in more efficient, useful and transparent grant and other program processes.	Accurate and timely data on program performance. Current system provides inadequate support and controls over lapses in timeframes.	NA	▪ Measure time delays in each step of the property disposition process. ▪ Increase performance data collected within the system. ▪ Have access to real-time information on the status of properties.	NA

2.5   Assumptions and Constraints

FHA assumes the ASP will be available to provide system upgrades and on-going maintenance to support Single Family's operations. Furthermore, FHA assumes that management changes will not affect the project scope and resources.

FHA considers the following to be constraints and challenges:

- Determining the impact on HUD's level of security and data ownership provided by the vendor.
- Foreseeing impact of HUD's in-process information technology initiatives, such as Enterprise Architecture and FHA Subsidiary Ledger Project.
- Determining the solvency and ability of the ASP.

2.6   Methodology

FHA conducted a detailed assessment to determine which option would best meet the needs of the property disposition program. The results of the assessment can be found in the *Alternatives Assessment* report. The following subsections outline the detailed approach to the analysis.

2.6.1   Identify Options

As previously presented, FHA selected to analyze five options:

- Enhancements to SAMS.
- Customized solution.
- COTS solution.
- ASP solution.
- Data Reporting solution.

We made these selections based on FHA's business needs, interviews, presentations with key FHA stakeholders, and industry trends. Furthermore, these options offer a range of project scale, from performing modifications to the current system to developing a new property management system. The analysis of these options provides decision-makers with the information needed to make appropriate investment plans. However, it is important to note that these options reflect representative solutions rather than a particular product or vendor.

2.6.2   Conduct Market Research on Options

FHA conducted market research to identify products that best meet FHA's business needs. FHA's research efforts concentrated on REO and property management software providers and the alternatives used by the private sector, federal agencies, and Government Sponsored Enterprises (GSE) with housing programs. Mortgage banking resource directories, industry periodicals, and articles relating to REO and property management were used to develop a list of software companies for further research.

After gaining a better understanding of the market, FHA focused its research on the specific products and vendors that offer the functionality to most effectively meet its business needs. In performing the analysis of these options, conference calls, face-to-face interviews, and site visits with providers were conducted. WebEx demonstrations of several system solutions were also reviewed. Information was gathered from nine organizations during this phase.

2.6.3   Evaluate Options According to Predetermined Criteria

FHA developed evaluation criteria and subcriteria to provide a means of objectively evaluating each of the options. First, the objectives outlined in its *Business Needs* report were used to assess how well each option meets FHA's unique business requirements. Second, FHA analyzed additional technical factors based on the system needs outlined in the *Business Needs* report. Third, FHA analyzed high-level cost estimates for each option.

FHA's analysis technique provides for broad categories of evaluation criteria. This type of evaluation allows for a wide-ranging and comprehensive review of the benefits and risks of options and is most suitable for a preliminary evaluation of solution categories (i.e., Enhancements, Customization, COTS, ASP, or Data Reporting).

2.6.4   Score and Rank Options

In the analysis of each option, we provide a brief description and a score that assesses how well the option meets each criteria and subcriteria. Based on interview results and a detailed review of documentation gathered, FHA assigned a score to each of the subcriteria for the five options. Scores were assigned based on the following scale:

0 – Does not meet FHA's business needs or technical requirements.

1 – Partially meets FHA's business needs or technical requirements.

2 – Substantially or fully meets FHA's business needs or technical requirements.

To equally weight each criteria, FHA averaged the scores of the subcriteria to derive an overall criteria score. FHA then added all of the overall criteria scores for business and technical analyses to derive a grand total for each option. Scoring each of the options allows FHA to quantify and objectively view how well each of the options meet requirements. The cost estimates were used to supplement the overall rankings.

2.6.5   Develop Key Findings, Recommendations, and Action Steps

FHA developed key findings based on the scores from the business needs and technical analyses in conjunction with dollar figures from the cost analysis. FHA selected a system option and developed recommendations based on numerous factors, including the scores, cost figures, current environment and associated impacts, and overall advantages/disadvantages of a particular solution. FHA then outlined action steps that are critical to the success of these types of projects.

2.7   Evaluation Criteria

FHA conducted the evaluation of each option by assessing three key criteria: business needs, technical environment, and cost. Business needs evaluates how well each option met the business requirements of FHA and its contractors. Technical environment evaluates how well each option met FHA's technical requirements. The third criterion evaluates the options based on investment and on-going costs.

2.7.1   Business needs

FHA evaluated how well each option supports the unique requirements of the property disposition program and its contractors according to the objectives outlined in the *Business Needs* report. The *Business Needs* report categorizes the business needs into 13 objectives. It further organizes the objectives according to the functions and processes outlined in the Single Family Target Architecture that align with the property disposition program – Loan Insurance, Business Participant Management, Business Evaluation, and Financial Management. The following bullets define the criteria and subcriteria used to assess each option by business function.

- **Loan insurance –** Evaluates how well each option supports FHA's ability to manage and market assets. The evaluation of compliance with loan insurance business needs is based on the following subcriterion:
    - Comprehensive case management tool with user-friendly navigation.

- **Business participant management –** Evaluates how well each option supports FHA's ability to monitor business participants, such as M&M contractors, special property inspectors (SPI), file review contractors, non-profit groups, closing agents, and real estate brokers. The evaluation of compliance with business participant management business needs is based on the following subcriteria:
    - Up-to-date listing of approved business partners with built-in controls over authorized activities and payments.
    - Standardized monitoring of M&M contractors.
    - Quantifiable measurement of M&M evaluation and monitoring that are clearly communicated and tracked.
    - Proper controls over monitoring contractors and vendors.
    - Timely communication of business partner terminations with built-in controls over participation.

- **Business evaluation –** Evaluates how well each option supports FHA's ability to effectively evaluate program performance. The evaluation of compliance with these business needs is based on the following subcriteria:
    - Quantifiable measurement of portfolio evaluation with trends captured over time.
    - Proper adherence to program policies and procedures.

- **Financial management –** Evaluates how well each option supports FHA's ability to effectively manage financial matters, including accounting functions, funds control, payables management, and receivables management. The evaluation of compliance with financial management business needs is based on the following subcriteria:
    - Accurate summary level account of property inventory, collections, and disbursements to support financial statements and other management reporting.

- Maintain an accurate financial status of each property.
- Controls over budgetary funds.
- Accurate and timely payments with appropriate control mechanisms to protect against waste, fraud, and abuse.
- Accurate and timely collections with appropriate control mechanisms to protect against waste, fraud, and abuse.

2.7.2   Technical environment

FHA evaluated how well each option supports the technical requirements unique to FHA's and HUD's systems environment. The *Business Needs* report documents FHA's systems needs for property management and assessment. FHA used the system needs and the requirements detailed in the statement of work to develop four criteria to assess each option.

- **Compatibility with technical environment –** Evaluates how well each option supports FHA's and HUD's technical environment. Examples include nationwide implementation, client/server or web-based architecture, and on-line transaction processing. The evaluation of compliance with technical requirements is based on the following subcriteria:
    - Ability to provide a single integrated solution nationwide.
    - Capability to provide an open system architecture.
    - Compliance with Federal laws/regulations (e.g., Clinger-Cohen).

- **Viability/adaptability/flexibility –** Evaluates the degree to which the option can be tailored to meet the specific needs of an organization. The evaluation of viability/adaptability/flexibility is based on the following subcriteria:
    - Proven solution.
    - Providing software maintenance/upgrades.
    - Meeting changing regulatory requirements.

- **Time constraints and resources –** Evaluates length of time required to implement each option and the availability of support provided by the solution provider during and after the implementation of each alternative. The evaluation of schedule/time constraints and resources is based on the following subcriteria:
    - Ability to implement to meet agency deadlines.
    - Training capability.
    - Implementation support.
    - Ongoing support/maintenance.
    - Internal staffing requirements.

- **Support for enterprise-wide solution –** Evaluates how well each option supports Single Family's target architecture. The evaluation of schedule/time constraints and resources is based on the following subcriterion:
    - Ability to provide an integrated solution across the Office of Single Family that complies with enterprise-wide architectural standards.

2.7.3   Costs

FHA prepared order-of-magnitude cost estimates to facilitate comparison across the various options. Multiple vendors and service providers identified in this analysis were surveyed, along

with information technology experts, to develop conservative cost estimates. However, it should be noted that the sample products and services used to develop the cost estimates were not based upon a detailed product evaluation and selection process. In addition, these cost estimates are based on a standard federal pricing model and do not reflect any potential negotiated discounts. The actual costs to be incurred for each option will vary significantly based upon the validity of the assumptions and the final scope of the target system.

This assessment provides high-level research and analysis of top-tier vendors and products for comparison purposes only. It is intended to provide HUD with conservative estimates to make an effective strategic business decision.

2.8   Recommendation

This section documents an applicable subset of recommendations previously developed in the *Alternatives Assessment* document. After performing an in-depth review of each option, FHA selected the ASP solution for deployment.

2.8.1   Recommendation 1 - Select ASP Solution

FHA management agrees with the conclusion of the *Alternatives Assessment* report that the ASP solution is the best option for its property disposition program. FHA identified products in the market that would place HUD with the best practice and industry leaders in REO. Furthermore, this option received the highest score for meeting FHA's business and technical needs. It also allows for the lowest start-up costs and the fastest implementation.

Since an ASP would host the application outside of FHA's system environment, FHA does not deviate from any current or future HUD enterprise architecture standards. The ASP solution allows FHA to obtain the required system functionalities for its business model and to resolve long-standing audit issues within one to two years while HUD completes its enterprise architecture model. Furthermore, FHA would also be following the recommendations issued by GAO. In a report published in October 2001, GAO stated, "To address the information system challenges facing HUD's homeownership centers, we recommend that the Secretary of Housing and Urban Development direct the Chief Information Officer and Assistant Secretary for Housing-Federal Housing Commissioner to…Continue delaying any sizable single-family systems acquisition or development until the Department's enterprise architecture is complete."[1] The ASP solution allows FHA to obtain the functionalities of a new system, while HUD continues to develop its enterprise architecture. Once the enterprise architecture is finalized, FHA will be in a position to re-evaluate its property management systems environment.

There are risks associated with partnering with one vendor as the sole source of maintenance and hosting of the system. However, FHA can mitigate these risks by taking the recommended steps:

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[1] GAO, Current Information Systems Do Not Fully Support the Business Processes at HUD's Homeownership Centers. October 2001.

- **Research and select a mature vendor with extensive industry experience and a solid financial position** – When assessing specific products for procurement, FHA should also carefully scrutinize the vendors. FHA should analyze the history and financial position of potential vendors and communicate with other customers to obtain information on their level of satisfaction with vendor performance. FHA should select a vendor with a strong financial position and a proven record of providing long-term service to its customers.

- **Research and utilize best practices in the area of contract negotiation and finalization** – Before finalizing any contract with an ASP, FHA should research examples set by other organizations that elected to use an ASP. FHA should communicate with personnel from those organizations, analyze the terms of those contracts, and decide the proper course of action necessary to protect FHA.

- **Analyze lessons learned from similar IT projects both internal and external to HUD** – FHA should examine lessons learned from the transition of the original SAMS system to the new SAMS system and other similar projects at HUD. For example, the new system should not be developed with proprietary software and should be built on an open architecture. FHA should also communicate with industry partners to learn from the experiences of other organizations that underwent similar initiatives.

- **Structure the contract to protect FHA in the event the ASP cannot meet the terms of the contract or other foreseeable scenarios** – FHA should take the necessary precautions to maintain rights to the application and data in the event the vendor cannot meet its contractual obligations. FHA should use service level agreements to ensure that the selected vendor fulfills requirements specified during contract negotiation. Service level agreements should be structured to closely align with HUD's performance-based contract initiative to provide HUD with the ability to withhold payments based on poor performance. FHA will be able to effectively mitigate potential risks by applying knowledge gained in researching best practices and lessons learned and by carefully structuring the contract to protect its interests.

2.8.2   Recommendation 2 – Leverage Functionality of Subsidiary Ledger

As documented in the *Alternatives Assessment* report, the ASP products lacked adequate functionality to meet the financial management business needs. However, FHA plans to have the proposed property management system interface with its subsidiary ledger and leverage the functionalities of the new PeopleSoft modules to reduce the possibility of duplicate system functionalities.

Under this scenario, the proposed property management system serves as the operational system and the subsidiary ledger serves as the financial system. An interface between the property management system and the subsidiary ledger facilitates the exchange of financial information at predetermined events or on predetermined timeframes. Leveraging its workflow functionality, the property management system will feed sufficient financial information to the subsidiary ledger. The subsidiary ledger will then automatically perform funds control, generate standard general ledger entries, and store the information for each type of transaction. The subsidiary ledger will also feed sufficient financial information to the property management system to fulfill Single Family's business needs. This joint system approach:

- Eliminates redundant system functionality.

- Optimizes use of FHA's pre-existing commercial-off-the-shelf package.

- Meets the business needs of different functional areas.

- Takes advantage of best practices and new technologies in the mortgage banking industry.

- Capitalizes on the strong accounting and funds control functionality of the FHA Subsidiary Ledger.

- Allows for a single point of entry – depending on the end-user's business function – on a nationwide level.

- Provides support for financial statement audits and helps to eliminate control weaknesses.

- Complies with FHA Office of the Comptroller's *Vision of Financial Management*.

As outlined in the vision, FHA plans to have the FHA Subsidiary Ledger take over financial management responsibilities for SAMS and each of the feeder systems.

3.0   Proposed System

3.0 PROPOSED SYSTEM

3.1   Description of Proposed System

In the proposed system, an ASP will host the property management application on its own servers within its own facilities. The ASP not only hosts the application, but will provide full-scale services for implementation, training, and ongoing operational support. The service provider will shoulder the burden of database and programming administration, backup processing, and core hardware acquisition, support, and maintenance. The ASP will provide FHA with the required hardware platform and infrastructure support, eliminating the time required for hardware procurement and installation. The ASP solution resides external to a client's technical environment so it will not impact the development of HUD's enterprise architecture. The ASP solution allows FHA to obtain the functionalities of a new property management system, while HUD continues to develop its enterprise architecture.

In the *Alternatives Assessment* report, IBM recommends that FHA leverage the functionality of the subsidiary ledger application to perform financial management functions. The new property management system will serve as an operational system and the subsidiary ledger serves as the financial system. This will require an interface between the ASP product and the subsidiary ledger that facilitates the exchange of financial information at predetermined events or on predetermined timeframes.

There is a wide range of options for the division of specific responsibilities between the property management and subsidiary ledger systems. As a result, the type of interface constructed will depend on these decisions. Prior to making decisions about the interface, FHA needs to define the functional requirements of the interface, determine selection criteria for the property management system, select the specific solution, and determine the optimal approach to the interface.

3.2   Improvements

The proposed property management system provides several key improvements in functionality from the current systems environment and will assist FHA in meeting the objectives defined within the President's Management Agenda and HUD's Strategic Plan.

The proposed solution will be a web-based system with property management and REO functionalities. It has a comprehensive workflow engine that will assign work based on predetermined events. The combination of the web and the workflow engine will make the system easily accessible to stakeholders and streamlines business processes. Turn-around timeframes, maintained by the system, aid in work distribution and performance monitoring. The workflow engine will also assist in eliminating manual and paper-driven processes.

The system will have an easy to navigate GUI. The GUI will give users easy access to case level pertinent property information and improve screen flow. The solution will also provide support for electronically imaged documents, incorporate comprehensive communication tools for Single Family and its business partners, and provide a new user-friendly reporting tool. With these tools, FHA and its business partners can realize time-savings by quickly sharing information within the system.

The proposed solution will improve monitoring functions and FHA's ability to analyze program performance. The solution will incorporate the functionalities of RBTM and ITAS to provide a central location to sample, assign, and review case files. The property management system will also provide quantifiable measurements of M&M contractor and vendor performance for all areas of service and will have analytical tools available to conduct statistical analyses of portfolio data.

Through an interface with the subsidiary ledger, the vision for property management also will improve financial management. FHA plans for the solution to leverage the existing functionalities of the subsidiary ledger to provide payables, receivables, and funds control functionality. These improvements will increase efficiencies by decreasing staff time spent on reconciliation activities and other manually intensive processes.

3.3   Time and Resource Costs

The following table outlines the estimated funding required for all activities of the lifecycle from definition through operation over a five-year timeframe. The ASP solution is estimated to have the lowest initial implementation costs because ASP can leverage existing system applications and technology infrastructure as part of their solution to HUD. The ASP annual operating costs are anticipated to be higher than the COTS solution, but lower than the customized and data reporting solution. Additional cost savings not documented in this assessment may be observed under the ASP solution if HUD's personnel levels supporting the application can be reduced. Overall, the total cost of ownership for the ASP and COTS solution are similar over a five-year period.

Table 1 – Summary of 5-Year Total Costs for ASP Solution

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Hardware	$ 250,000	$ -	$ -	$ -	$ -	$ 250,000	$ 237,986
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Interfaces	$ 3,375,000	$ -	$ -	$ -	$ -	$ 3,375,000	$ 3,212,817
Testing	$ 375,000	$ -	$ -	$ -	$ -	$ 375,000	$ 356,980
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 937,500	$ -	$ -	$ -	$ -	$ 937,500	$ 892,449
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 9,175,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 9,175,000**	**$ 8,734,103**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 517,671	$ 435,754
System Operations & Upgrades	$ -	$ 1,500,000	$ 1,534,800	$ 1,570,407	$ 1,606,841	$ 6,212,048	$ 5,229,049
Hardware & Communications	$ 15,625	$ 62,500	$ 63,950	$ 65,434	$ 66,952	$ 274,460	$ 232,751
Ongoing IV&V for Upgrades	$ -	$ 62,500	$ 63,950	$ 65,434	$ 66,952	$ 258,835	$ 217,877
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 87,500	$ 89,530	$ 91,607	$ 93,732	$ 362,369	$ 305,028
Recurring Cost Total	**$ 931,540**	**$ 2,774,664**	**$ 2,839,037**	**$ 2,904,902**	**$ 2,972,296**	**$ 12,422,439**	**$ 10,559,346**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 16,933,943**	**$ 2,774,664**	**$ 2,839,037**	**$ 2,904,902**	**$ 2,972,296**	**$ 28,424,842**	**$ 25,792,766**

3.4   Impacts

This section highlights the foreseeable impacts of the proposed system in a number of areas.

3.4.1   Equipment Impacts

The proposed system will impact Single Family's internal system architecture. Once implemented, FHA will no longer be required to use HUD hardware to house the property management system. The ASP will provide the necessary hardware and will host the application. Existing workstations and communications lines may be able to meet the requirements of the ASP solution. In-depth hardware and communication needs will be detailed in subsequent phases of the project life cycle. There may be some additional hardware requirements to support the interface between the proposed property management system and the subsidiary ledger as the interface becomes fully defined.

During development, FHA does not foresee any significant changes to HUD's equipment requirements because the proposed system will be hosted outside of the HUD technical environment. FHA will continue to use SAMS and its existing hardware until the new system is in production and SAMS is phased out. FHA will work with the OCIO, OIT, and OCPO to assess compatibility with existing and future architectural environments and to execute any necessary procurement actions.

3.4.2   Software Impacts

The ASP solution provides periodic updates to incorporate new information technology and system requirements. FHA will work with the OCIO, OIT, and OCPO to provide reasonable assurance of compatibility with existing and future architectural environments and execute any necessary procurement actions.

In the near term, FHA plans to develop an automated rules-based engine to facilitate the transfer of information between the proposed system and the subsidiary ledger. This rules-based engine can be leveraged across other Single Family systems that feed information to the subsidiary ledger. This rules-based engine is an integral part of the FHA Office of the Comptroller's *Vision of Financial Management.*

FHA may require additional support software to integrate the property management system with other Single Family systems. FHA will work with the OCIO, OIT, and OCPO to evaluate support software requirements, assess compatibility with existing and future architectural environments, and execute any necessary procurement actions. FHA will incorporate tasks for evaluating and acquiring the required support software in the project workplan.

3.4.3   Organization Impacts

The proposed solution is expected to have minimal impact on Single Family's organizational, personnel, and skill requirements. Single Family has recently undergone organizational changes during an extensive business process re-engineering effort. With the implementation of the ASP solution, Single Family will try to minimize any additional organizational changes.

Single Family does anticipate the need for skills development with the implementation of the new property management system. Personnel now engaged in extensive reconciliation or data analysis efforts will have to obtain new skills and successfully adapt to the new business processes and system. As part of the change management component of the project, FHA will analyze the organizational readiness for the new system. Single Family will work closely with end-users and other users to determine the target business processes and will conduct training and communications sessions to prepare FHA for the implementation. Changes in organizational structure will also be recommended if appropriate.

3.4.4   Operational Impacts

The proposed system will have a significant impact on HUD's and FHA's operations. The new property management system will significantly change user-operating procedures, data entry processing, and output-reporting procedures. In addition, the maintenance support of Single Family's property management system will become the responsibility of the ASP.

Leveraging the subsidiary ledger system will also decrease the amount of staff time necessary to reconcile accounting information and will improve the performance of funds control functions. FHA will work with those staff impacted by the changes to determine roles and responsibilities, identify the necessary training, and resolve issues in a timely manner.

3.4.5 Developmental Impacts

Specific activities to be performed by the user in support of the development of the ASP solution include, but are not limited to:

- Participation in prototype workshops.
- Review applicable documentation.
- Involvement in acceptance testing.
- Support for reconciliation efforts of parallel testing.

In addition, users will be expected to participate in training.

The impact on computer processing resources required to develop the proposed system will be minimal. Under this option, the ASP shoulders the burden of database and programming administration, backup processing, and core hardware acquisition, support, and maintenance. The ASP provides the required hardware platform and infrastructure support, eliminating the time required for hardware procurement and installation.

3.4.6 Site or Facility Impacts

FHA does not anticipate any building or office modification changes.

3.4.7 Security and Privacy Impacts

At this time, FHA does not anticipate that any security and privacy factors will prevent the development, design, and continued operation of the proposed system. Specific security plans will be determined during the Define phase of the System Development Methodology and will be in accordance with HUD ADP security standards as well as Federal Computer Security guidelines as documented in *OMB Circular A-130, Management of Federal Information Resources*.

The sensitivity and criticality of the information stored within, processed by, or transmitted by a system is one of the major factors in risk management. Some of the information within the property management system is considered privacy data and may be sensitive to unauthorized access or release. The security of the databases, transmission, and analytics of its content must be evaluated and protected in accordance with the Privacy Act of 1974, HUD Privacy Handbook 1325.01 with revisions, and the Computer Matching and Privacy Protection Act of 1998. Once the ASP is selected, these risks will need to be mitigated. FHA will ensure that HUD-approved security processes, technologies, and tools are in place to provide adequate controls and protections for security and privacy. Access controls, such as user ID and passwords protection, will help to mitigate unauthorized access with access levels commensurate with job responsibilities. Limiting system permissions reduces the risk that users will perform inappropriate functions.

Other key protective measures, such as anti-virus, intrusion detection, and counterfraud programs, should be resident within the system.

3.5   Rationale for Recommendations

In the *Alternatives Assessment* report, the ASP solution scored the highest in FHA's quantitative analysis of all of the options. The majority of the ASP solutions reviewed for this analysis had both property management and REO functionalities. This option had the highest score for technical requirements due to the many advantages of hosting the system outside of HUD's system environment. A major advantage over the other solutions is that, in the ASP environment, the service provider shoulders the burden of database and programming administration, backup processing, and core hardware acquisition, support, and maintenance.

The ASP solution is estimated to have the lowest initial implementation costs, as the ASP can leverage existing system applications and technology infrastructure as part of their solution to HUD. This option is also estimated to have the lowest overall costs over a five-year period. Although there are risks associated with relying on an ASP to host the system, HUD can mitigate these risks by carefully structuring service level agreements with performance-based measurements to best protect FHA's interests.

4.0   Alternative Systems

4.0 ALTERNATIVE SYSTEMS

In addition to the proposed solution described in sections 2.0 and 3.0, FHA reviewed the following options for improving the SAMS environment:

- Enhancements to SAMS.

- Customized solution.

- COTS solution.

- Data Reporting solution.

The remainder of this document describes each option and the reasons that the particular option was not selected.

4.1   Enhancements to SAMS

This alternative evaluates the continued use of SAMS with modifications. In this scenario, SAMS remains the underlying system without changes to its core functionality. However, FHA assessed the value of introducing new technologies that work in conjunction with SAMS.

4.1.1   Description of the System

SAMS is a mixed program and financial management system. As noted in the *Current Deficiencies* report, SAMS currently lacks capabilities within some of its core functionalities, is not user-friendly, and does not take advantage of technological advances. Based on the review of the major deficiencies with SAMS, FHA proposed the following modifications in addition to those already scheduled:

- **Front-end GUI** - Provide standardized text and graphics presentation with point and click selection. Offer functionality similar to widely used Windows and Apple applications.

- **Contemporary reporting and analytical tool** - Provide a user-friendly tool with capability to design and store queries and reports as well as present results in columnar or graphical format. Offer ability to easily select and join files and fields and send output to the screen, print, or file.

- **New procurement module** – Provide a procurement module to control contracts and payments.

- **Improved communication capabilities** - Provide the capability to generate letters and select an output option to print, fax, or email. Include email capability familiar in today's market such as an address book, established groups for broadcast email/messages, and attachments.

4.1.2   Time and Resource Costs

Unlike the other options, we provide cost estimates for the status quo for SAMS rather than the costs for the proposed enhancements to SAMS. This approach follows standard cost-benefit analysis practice of measuring options against the status quo. For this cost estimate, we assume that the same level of modifications and upgrades currently observed at FHA will

continue over the next few years with an applicable inflation factor. Accordingly, status quo is the lowest price option for year one because no additional implementation costs would be incurred under this scenario. Status Quo costs do not capture the costs of operating ancillary systems, such as RBTM or ITAS. There are no phase-out costs for this option because SAMS will not be phased out. In addition,

Table 2 – Summary of 5-Year Total Costs for Status Quo

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hardware	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Configuration	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Customization	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interfaces	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Testing	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Data Conversion	$ -	$ -	$ -	$ -	$ -	$ -	$ -
BPR	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Training	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Change Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Project Management	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Implementation IV&V	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Investment Cost Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ 2,549,504	$ 2,608,652	$ 2,669,173	$ 2,731,098	$ 2,794,460	$ 13,352,887	$ 11,520,837
System Operations & Upgrades	$ 230,902	$ 236,259	$ 241,740	$ 247,349	$ 253,087	$ 1,209,338	$ 1,043,414
Hardware & Communications	$ 500,000	$ 511,600	$ 523,469	$ 535,614	$ 548,040	$ 2,618,723	$ 2,259,427
Ongoing IV&V for Upgrades	$ 2,791,504	$ 2,856,267	$ 2,922,532	$ 2,990,335	$ 3,059,711	$ 14,620,348	$ 12,614,399
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ 598,179	$ 612,056	$ 626,256	$ 640,785	$ 655,651	$ 3,132,928	$ 2,703,082
Recurring Cost Total	**$ 7,586,004**	**$ 7,761,999**	**$ 7,942,077**	**$ 8,126,334**	**$ 8,314,865**	**$ 39,731,278**	**$ 34,280,045**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Phase-Out Cost Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 7,586,004**	**$ 7,761,999**	**$ 7,942,077**	**$ 8,126,334**	**$ 8,314,865**	**$ 39,731,278**	**$ 34,280,045**

4.1.3   Rationale for Elimination

Making extensive modifications to SAMS to meet FHA business needs is not a viable or cost effective option for FHA. Even with extensive modifications, SAMS would still not fully meet all of FHA's business needs due to the required level of development. This option scored the lowest of all the options in FHA's assessment of its ability to meet business needs and technical requirements. In addition, this option does not address the point that the underlying technology of SAMS is old and operating costs are high. SAMS is hosted on a mainframe that is connected to HUD's network through a COMTEN Front End Processor. Software used in SAMS includes COBOL, DB2, CICS, EXTRA, JCL, NOMAD, and ENDEVOR. Annual operating expenses for

the mainframe environment exceeds $6 million per year, and we estimated this option to have the second highest costs for FHA over a five-year period.

4.2   Customized Solution

This option calls for HUD personnel or its contractors to design and develop a customized system solution in-house.

4.2.1   Description of the System

In this option, HUD personnel are responsible for all parts of the system development lifecycle, including:

- Defining the functional and technical requirements.

- Selecting the appropriate technology.

- Developing the software (developing hardware/software plan, installing the software, setting up the database, establishing security, configuring the software, converting the data, constructing the interfaces, developing queries and reports).

- Testing the software and system.

- Training.

- Phasing out the old system.

- Modifying and operating the system.

Customized solutions are a good choice when the software market for the client's business is nonexistent or immature. Since customized solutions are designed to fit unique business needs, this option gives HUD the greatest amount of control over the functionality of the system.

While we outlined benefits from a customized solution, this option also has many disadvantages. The costs associated with creating a customized solution are generally high and the implementation timeframes are long. Implementations of customized solutions have historically experienced schedule and cost overruns due to unforeseen development complexities. In addition, maintenance costs for a customized solution are generally high because the client bears all of the costs to upgrade or modify the system. Today, technological advancements also occur so rapidly that clients frequently cannot take advantage of upgrading customized systems and the technology quickly becomes obsolete. Furthermore, unless the client has developed an enterprise-wide architecture, it is difficult to integrate modules or other related systems with a customized solution. As a result, the client's ability to implement an open system solution is less likely to occur without a mature enterprise architecture.

4.2.2   Time and Resource Costs

We estimate that a customized solution will be the most expensive option available to HUD over a five-year period. This result is based on an assumption that any custom solution will have to provide a level of functionality and integration comparable to the solutions available through either the implementation of a COTS software solution or through an ASP. Supporting this analysis are industry benchmarks indicating that the development costs for custom software are typically one and one-half to three times as expensive as a comparable COTS solution,

depending upon the scope of the system. In addition, it is estimated that the recurring operating costs for this option will be expensive, given the current cost-structure observed for the existing SAMS environment.

Table 3 – Summary of 5-Year Total Costs for Customized Solution

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 10,500,000	$ -	$ -	$ -	$ -	$ 10,500,000	$ 9,995,431
Interfaces	$ 2,250,000	$ -	$ -	$ -	$ -	$ 2,250,000	$ 2,141,878
Testing	$ 1,500,000	$ -	$ -	$ -	$ -	$ 1,500,000	$ 1,427,919
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 1,200,000	$ -	$ -	$ -	$ -	$ 1,200,000	$ 1,142,335
Implementation IV&V	$ 1,050,000	$ -	$ -	$ -	$ -	$ 1,050,000	$ 999,543
Investment Cost Total	$ 20,800,000	$ -	$ -	$ -	$ -	$ 20,800,000	$ 19,800,472

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 2,608,652	$ 2,669,173	$ 2,048,324	$ 1,676,676	$ 9,002,825	$ 7,659,339
System Operations & Upgrades	$ -	$ 236,259	$ 241,740	$ 247,349	$ 253,087	$ 978,436	$ 823,607
Hardware & Communications	$ 62,500	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,097,841	$ 931,005
Ongoing IV&V for Upgrades	$ -	$ 2,856,267	$ 2,922,532	$ 2,242,751	$ 1,835,826	$ 9,857,376	$ 8,386,366
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 612,056	$ 626,256	$ 640,785	$ 655,651	$ 2,534,749	$ 2,133,648
Recurring Cost Total	$ 978,415	$ 7,500,399	$ 7,674,408	$ 6,422,096	$ 5,692,963	$ 28,268,282	$ 24,072,853

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	$ 28,605,818	$ 7,500,399	$ 7,674,408	$ 6,422,096	$ 5,692,963	$ 55,895,686	$ 50,372,643

4.2.3 Rationale for Elimination

Customized solutions allow clients to design a system to meet their business needs. However, in the *Alternatives Assessment* report, estimates show that a custom built solution will cost nearly double the cost of a COTS or ASP solution over a five-year period. In addition, even though the customized solution scored eight out of a possible eight for business needs, it finished second to the ASP solution in overall scoring due to its technical requirements scores.

Although both major housing GSEs are developing customized solutions for REO systems that are similar in scope and functionality to FHA's system needs, there are many factors that differentiate HUD's position from the GSEs' position. The GSEs are undergoing enterprise-wide infrastructure replacement projects to re-engineer all of their core systems onto a common platform. Both organizations have rigorously defined enterprise architectures and have initiated the building of their property management system in conjunction with their enterprise-wide

vision. Furthermore, both organizations have the resources to undertake such a far-reaching and large-scale project. FHA is still in the process of creating its enterprise architecture and has not finalized standards for building or implementing new systems. HUD is subject to new initiatives with changes in personnel, management, and administration. The custom-built application will require the longest time to implement, which will expose the project and the new system to many of these risks.

4.3   COTS Solution

The COTS-based approach consists of signing a licensing agreement with a software vendor for property management and REO systems or other packages that are capable of meeting Single Family's requirements.

4.3.1   Description of the System

In the COTS solution, FHA signs a license agreement with a software vendor for property management. The software vendor also offers or provides the tools for implementation, product integration, customization, and source code development associated with "gluing and wrapping" the COTS components. In our analysis of COTS packages for Single Family Housing, we focused this review on COTS packages specifically marketed to property management and REO business functions. We decided not to include large-scale COTS software solutions, such as PeopleSoft, Oracle, and Siebel. Large-scale COTS packages are typically selected when a client's business is common in the marketplace and requires a variety of functions, the applications are developed deep and broad enough to meet those business needs, and the future innovations or related applications will provide value to a client's overall business needs. These types of COTS packages are best suited for situations where clients can take full advantage of the broad functionality.

COTS packages offer many cost advantages. Since vendors develop COTS software for sale to numerous clients, the vendors can spread their research and development costs across their customer base. While the COTS package includes a front-end cost to acquire the software package, it offers low support / maintenance costs over time. Most COTS vendors provide customer help lines and on-line assistance. Furthermore, most COTS vendors provide periodic upgrades to enhance the technical functionality of the software. These upgrades help to keep customers current with industry standards or changes in requirements.

COTS packages may not be suitable for niche functions or clients who have unique business processes. COTS vendors capitalize on the marketplace by providing standard packages. Standard packages work well for general business functions, such as finance and human resources. For those client's with unique business processes or requirements, clients must either change their business processes to fit the system or configure the system to fit their requirements. Given that most mature COTS packages have best practice processes built into the system, most clients adapt their business processes to fully benefit from the COTS.

Our research disclosed a lack of REO COTS packages currently available in today's marketplace. Consequently, we included property management applications. Due to the limited market for REO systems, FHA will most likely need to customize the COTS packages to fit their business needs. We reviewed COTS packages that offer methods to adjust the software application to meet FHA's unique requirements.

4.3.2   Time and Resource Costs

The COTS solution is estimated to have the second lowest five-year costs of the options evaluated. While the initial implementation costs are more expensive than the ASP solution, the annual recurring costs are less than the status quo, the customized solution, the ASP solution, and the data reporting solution. It is assumed that any COTS solution will need to be customized to meet HUD's unique needs, and will require additional investment in configuration and customization relative to the ASP option.

Table 4 – Summary of 5-Year Total Costs for COTS Solution

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 1,750,000	$ -	$ -	$ -	$ -	$ 1,750,000	$ 1,665,905
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 2,625,000	$ -	$ -	$ -	$ -	$ 2,625,000	$ 2,498,858
Customization	$ 875,000	$ -	$ -	$ -	$ -	$ 875,000	$ 832,953
Interfaces	$ 2,250,000	$ -	$ -	$ -	$ -	$ 2,250,000	$ 2,141,878
Testing	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 200,000	$ -	$ -	$ -	$ -	$ 200,000	$ 190,389
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 11,300,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 11,300,000**	**$ 10,756,987**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 500,000	$ 511,600	$ 523,469	$ 535,614	$ 2,070,683	$ 1,743,016
System Operations & Upgrades	$ -	$ 300,000	$ 306,960	$ 314,081	$ 321,368	$ 1,242,410	$ 1,045,810
Hardware & Communications	$ 62,500	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,097,841	$ 931,005
Ongoing IV&V for Upgrades	$ -	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,035,341	$ 871,508
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 350,000	$ 358,120	$ 366,428	$ 374,930	$ 1,449,478	$ 1,220,111
Recurring Cost Total	**$ 978,415**	**$ 2,587,164**	**$ 2,647,187**	**$ 2,708,601**	**$ 2,771,441**	**$ 11,692,808**	**$ 9,950,337**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 19,105,818**	**$ 2,587,164**	**$ 2,647,187**	**$ 2,708,601**	**$ 2,771,441**	**$ 29,820,211**	**$ 27,206,642**

4.3.3   Rationale for Elimination

In analyzing the products available on the market, the majority of COTS products focused primarily on property management rather than REO functionality. Due to the limited market for REO systems, FHA will need to significantly customize and configure any COTS packages to fit their business needs. There are many disadvantages to implementing a COTS solution that requires extensive customization:

- Extensive customization reduces the quality of the customer support that the vendor can offer.

- The typical lower-cost licensing fee is offset by the cost of customization.

- Future enhancements by the vendor may be time-consuming and costly to apply to a system that is heavily customized.

In addition, with HUD in the process of defining its enterprise architecture, it may be difficult to implement a system that will not conflict with any new technical standards and that will be fully integrated across the enterprise.

4.4   Data Reporting Solution

The Data Reporting solution is a paradigm shift from the property disposition program's current operating model.

4.4.1   Description of the System

With this option, FHA discontinues the use of SAMS and requires the M&M contractor to report data on a pre-defined basis. In this option, HUD does not have a contractual relationship with a specific ASP. FHA forms partnerships with the IT industry and works with the industry to outline requirements for HUD's programs. Individual M&M contractors will develop their own systems in-house or contract with an ASP to provide such services. HUD does not pay for the system services or have the rights to the systems. However, the M&M contractors may end up passing on the costs to HUD.

For this option, FHA needs to develop a data warehouse or similar repository to store incoming data, create reports, and review the data to monitor adherence to contract terms. FHA also needs to perform periodic on-site audits to verify the validity of information provided. FHA may be able to leverage existing database and reporting applications. However, FHA may choose to license/purchase a data warehouse application that assists in the development of the data structures, storage, and interfaces. Additionally, FHA may review and select a third-party reporting tool that is designed to work well with today's databases. To meet business needs, the data interfaces will need to be robust, two-way interfaces with the M&M contractors. The interface to the FHA subsidiary ledger will function similarly to that of the interface described for the other solutions.

FHA will incur hardware costs for the development, testing, and production environments on a modern data warehouse environment. However, the contractors will furnish the hardware that supports the property management system, so FHA will realize a reduction in recurring hardware costs. Other costs will be reduced as the contractors assume some of these responsibilities. These include system maintenance, upgrade costs, and help desk costs.

4.4.2   Time and Resource Costs

The data reporting solution is estimated to have the second highest implementation costs and the third highest five-year costs of the options evaluated. Most of the expenses for building this solution are estimated to be from the extensive interfaces that will need to be developed along

with implementing the data warehouse to store incoming data transmissions from M&M contractor systems.

Table 5 – Summary of 5-Year Total Costs for Data Reporting Solution

Investment Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software	$ 875,000	$ -	$ -	$ -	$ -	$ 875,000	$ 832,953
Hardware	$ 500,000	$ -	$ -	$ -	$ -	$ 500,000	$ 475,973
Configuration	$ 1,312,500	$ -	$ -	$ -	$ -	$ 1,312,500	$ 1,249,429
Customization	$ 437,500	$ -	$ -	$ -	$ -	$ 437,500	$ 416,476
Interfaces	$ 5,250,000	$ -	$ -	$ -	$ -	$ 5,250,000	$ 4,997,715
Testing	$ 1,125,000	$ -	$ -	$ -	$ -	$ 1,125,000	$ 1,070,939
Data Conversion	$ 750,000	$ -	$ -	$ -	$ -	$ 750,000	$ 713,959
BPR	$ 1,875,000	$ -	$ -	$ -	$ -	$ 1,875,000	$ 1,784,898
Training	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Change Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Project Management	$ 400,000	$ -	$ -	$ -	$ -	$ 400,000	$ 380,778
Implementation IV&V	$ 350,000	$ -	$ -	$ -	$ -	$ 350,000	$ 333,181
Investment Cost Total	**$ 13,625,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 13,625,000**	**$ 12,970,261**

Recurring Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Software Maintenance/Upgrades	$ -	$ 250,000	$ 255,800	$ 261,735	$ 267,807	$ 1,035,341	$ 871,508
System Operations & Upgrades	$ -	$ 1,800,000	$ 1,841,760	$ 1,884,489	$ 1,928,209	$ 7,454,458	$ 6,274,859
Hardware & Communications	$ 15,625	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 533,296	$ 450,628
Ongoing IV&V for Upgrades	$ -	$ 125,000	$ 127,900	$ 130,867	$ 133,903	$ 517,671	$ 435,754
FHA Functional Users	$ 915,915	$ 937,164	$ 958,907	$ 981,153	$ 1,003,916	$ 4,797,055	$ 4,138,887
Help Desk	$ -	$ 400,000	$ 409,280	$ 418,775	$ 428,491	$ 1,656,546	$ 1,394,413
Recurring Cost Total	**$ 931,540**	**$ 3,637,164**	**$ 3,721,547**	**$ 3,807,886**	**$ 3,896,229**	**$ 15,994,367**	**$ 13,566,049**

Phase-Out Costs

Activity	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
Legacy System Phase Out	$ 6,827,403	$ -	$ -	$ -	$ -	$ 6,827,403	$ 6,499,318
Phase-Out Cost Total	**$ 6,827,403**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 6,827,403**	**$ 6,499,318**

	FY2004	FY2005	FY2006	FY2007	FY2008	5 Year Total	NPV
GRAND TOTAL	**$ 21,383,943**	**$ 3,637,164**	**$ 3,721,547**	**$ 3,807,886**	**$ 3,896,229**	**$ 36,446,770**	**$ 33,035,628**

4.4.3   Rationale for Elimination

The Data Reporting solution is a paradigm shift from the property disposition program's current operating model. While this option reduces HUD's role in technology, HUD's property management business functions are not fully supported by this option.

This option also demands a substantial investment in time, change management, and business process re-engineering to successfully implement. Specifically, it requires buy-in from both the HUD user community and M&M contractors. FHA will also need to meet with members of the technology industry to encourage participation, develop informal partnerships, and define data structures and reporting requirements. It may also require legal authorization and Federal Register processing. Furthermore, FHA may need to change many of its current processes in order to meets its contractor monitoring, evaluation, and financial management responsibilities. Given HUD's need to quickly resolve long-standing audit issues – particularly with financial

management – this option's implementation timeframe is too long. This option may be more appropriate for an enterprise-wide single-family model.

In addition, M&M contractors may not have the resources to develop, operate, or procure the services for a property management system suitable for FHA's program. Furthermore, the M&M contractor may pass on the system costs to FHA without reciprocal benefits.